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ON HYSTERORRHAPHY.

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Outline of Paper.

[*Consideration of natural supports which hold the uterus in its normal position. These for convenience of study considered as acting at three points:* (1) Pelvic diaphragm below, (2) Utero-sacral ligaments behind, (3) Broad ligaments in front (*v.* Fig. 1).

(1) *Pelvic diaphragm catches the blows of succussion and intra-abdominal pressure. Is in no way weakened by the clefts of rectum, vagina and urethra, as these are either placed excentrically, or cleave it in an oblique direction.*

Weakening of the pelvic diaphragm throws the weight of the uterus on (2) *and* (3), *which finally yield, resulting in a displacement of the uterus.*

Repair of this injury by closure of the enlarged vaginal outlet.

(2) *Relaxation of the utero-sacral ligaments involves a displacement of the cervix downwards in the vagina, and a consequent backward displacement of the fundus uteri.*

Repair of this injury not to be attained by operation; substituted by packing, pessary, etc.

(3) *Relaxation of the broad ligaments results in backward displacement of the fundus uteri*—retroposition *or* retroflexion.

Repaired often by simple packing or pessary in vagina, keeping cervix well back in the pelvis.

Sometimes all attempts per vaginam and rectum fail. In these cases hysterorrhaphy will succeed.

Conclusions.

All the uterine supports must be examined in every case of displacement.

Where several factors conjoin to produce displacement, p. d. and s. u. (*Fig.* 1), *must in all cases be repaired first, then if further infra-pubic treatment fails to remedy the remaining defect in l. l., supra-pubic Hysterorrhaphy is called for.*

Hysterorrhaphy—defect of previous method (*by Olshausen, Sanger, Kelly*) *is that the attachment of the uterus to the abdominal wall by its anterior face feathered it backwards, thus putting it at a mechanical disadvantage.*

New method here described is the attachment by the ovarian ligaments thus throwing uterus into marked anteflexion. Three cases reported.]

Hysterorrhaphy is the operation for the correction of mal-positions of the uterus, by suturing it to the abdominal or pelvic walls. It is a surgical procedure involving first an abdominal section, low down in the median line, next the elevation of the corpus uteri out of the sacral hollow, with the separation of any adhesions binding it down, and finally its fixation by a series of sutures passing through the body of the uterus or close to its sides, and into or through the abdominal walls. These fixation sutures can be cut short and dropped within the peritoneum, or fastened outside on the skin and removed after the persistence of the uterus in its new posture has been assured.

A brief preliminary consideration of the mechanical factors concerned in the support of the uterus *in its normal position*, will greatly assist the appreciation of these rarer conditions, when it is necessary to resort to this more serious and radical method of treatment of its deviations.

For convenience of representation the uterine supports which preserve its *equipoise* in health may be considered as acting at three points. The body of the uterus is held in its position of mobile anteflexion by the broad ligaments in front (*l. l.*) at its fundus, and by the utero-sacral ligaments behind (*s. u.*) acting at the cervical end.

Fig. 1.

Showing the points at which the normal uterine supports act to preserve its equipoise; *l. l.* broad ligaments; *s. u.* utero-sacral ligaments; *p. d.* represents the resiliency of the pelvic diaphragm; *p. i.* is intra-abdominal pressure tending to displace a uterus in which any of these supports are broken down.

The weight of the uterus does not fall upon either of these stays in health.

Every movement of the body is communicated to the uterus. The succussions of coughing, sneezing, walking and running, and above all, the force of intra-abdominal pressure, increased by all exertion, especially by one-handed lifting and the straining necessary to overcome constipation, act in the direction of the arrows *p. i.*, driving the uterus down towards the pelvic diaphragm *p. d.*, which is resilient, and immediately sends it up again to its former position.

There are three breaks in the pelvic floor, the two outlets the rectum and the urethra, and the out- and inlet, the vagina (Fig. 2), but these are either placed excentrically forwards or cleave its layers in an oblique direction and thus in no way weaken its resisting power.

If, however, the pelvic diaphragm is broken down, or the outlet of the vagina becomes relaxed (commonly called rupture of the perineum), the mechanical factor *p. d.* disappears, that is there is no longer anything below to catch the blows of *p. i.* (*v.* Fig. 1) and the uterus unsupported at this point, now rests with its full weight, increased by such impacts as fall

upon it, upon the slender stays *s. u.* and *l. l.* If it takes a force of say fifteen units to support the uterus distributed as follows: two at the broad ligaments to hold it forwards, three at the cervical end to hold it back, and ten below holding it and all the pelvic viscera up, if eight of these units are taken out of the pelvic floor by a relaxation, *l. l.* and *s. u.* must at once do more work making up the deficiency of the eight units needed for its support, or the inevitable result will be that *s. u.* and *l. l.* will in time yield, and the uterus be driven down towards the weak spot by *p. i.* above (*v.* Fig. 3). The mechanism is as follows: the fundus cannot descend through the anterior vaginal wall to escape from the lax outlet, on account of the interposed bladder, a water-cushion upon which it now rests.

FIG. 2.

Shows the directions of the rectal, vaginal and urethral outlets piercing the pelvic floor obliquely and placed forwards.

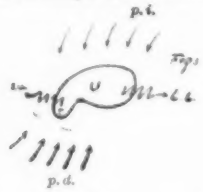


FIG. 3.

The arrows at *p. i.* represent units of intra-abdominal pressure; the arrows *p. d.* the resisting power of the pelvic diaphragm; *s. u.* and *l. l.* the forces which keep the poles of the uterus in position.

FIG. 4.

The long wavy line *s. u.* represents the relaxed utero-sacral ligament, allowing the downward displacement of the cervix.

The force of the blows *p. i.* falls therefore upon *s. u.*, which yields gradually, and the cervix begins to slide down the vaginal canal (*v.* Fig. 4). At this juncture the fundus uteri comes more directly between the lines of downward pressure and the vaginal outlet, and is as a consequence finally retroverted and driven back into the sacral hollow.

If now on the other hand from any causes the *l. l.* becomes relaxed, or has to bear the undue strain of an enlarged uterus, it rapidly yields to the strain, and a simple flexion or retroposition backwards is the immediate result (*v.* Fig. 5).

From this brief consideration of the three factors concerned in producing displacements, we are prepared for a rational consideration of the treatment of displacements. It is at once manifest that it is not worth while to try to do much with the two weaker superior supports (*s. u.* and *l. l.*) as long as the strong pelvic diaphragm is deficient, for no treatment or operation we can perform will enable these slender supports to substitute the stronger, and bear the brunt of all the attacks of the abdominal viscera bearing down upon a corpus uteri devoid of support below.

FIG. 5.

The wavy line shows *l. l.* (ligamenta lata) relaxed, no longer able to hold the fundus forward.

Thus the pelvic diaphragm (*p. d.*) must in all cases be restored first, and no device for retaining the uterus *in situ* is rational, which does not first assure the integrity of this, its inferior support. This can be accomplished, when the pelvic diaphragm is broken down, by a closure of the outlet, either by the old-fashioned denudation methods on the posterior wall, narrowing the outlet by the substitution of a wedge, apex upwards (*v.* Fig. 6), or by Emmet's or Martin's operations, which closely imitate nature in the restoration of the pelvic diaphragm (*v.* Fig. 7).

FIG. 6.

Shows substitution of a wedge, after the old method, by which the relaxed outlet is corked up, as it were.

FIG. 7.

Shows by the loops the restoration of the relaxed vaginal outlet, giving the levator ani a new hold on the tissues torn away and dropped back out of its grasp.

We have unfortunately no good surgical procedure for restoring the utero-sacral ligaments, but we can form a substitute by packing the vagina, or inserting a pessary, which keeps the cervix back in the sacral hollow by means of its posterior bar.

FIG. 8.

Keeping the cervix up by cotton when *s. u.* is weak.

With *s. u.* and *p. d.* thus rendered functionally active, we still have the problem of restoring *l. l.* to a state of efficiency. *Sometimes but little more is necessary than a simple elevation of the fundus, after which it remains in situ naturali, or is easily retained by a pessary.*

In other cases it is simply impossible to keep the fundus forward by any treatment through the vagina; and where strong adhesions exist binding it down in retroflexion, it is manifestly impossible to accomplish anything by treatment through the inferior strait of the pelvis. If there be no relaxation at the vaginal outlet, and the cervix be held well back in the pelvis, it is clear that *when we bring the uterus into such a position, that the blows of the intra-abdominal pressure fall upon its posterior surface, the degree of its anteflexion will be constantly increased, and the gentlest force applied at its anterior pole will be sufficient to detain it in its new position.*

In this way in simple retroflexion the operation of shortening the round ligaments by cutting down over the inguinal canals, and pulling them out to such a degree as to draw the uterus well forwards, and cutting off the excess and stitching the stumps into the wound, has proved very successful in some hands.

On the other hand there are a number of operators who prefer the more direct plan of making a small abdominal incision, which allows at the same time a thorough examination of all the pelvic organs, and enables the operator to deal directly with the displaced uterus, elevating it, and even breaking up any bands of adhesions binding it down to the pelvic floor.

One of these direct intra-pelvic plans is *hysterorrhaphy—the attachment by suture of the displaced uterus by corpus or broad ligaments close to its body, to anterior abdominal or pelvic wall.*

As originally devised and practiced by Olshausen, Sanger, Werth, Brennecke and myself, the procedure consists in catching the broad ligaments on their anterior face (through the round ligament, Olshausen) elevation and attachment by suture to the lower part of the anterior abdominal wall. (Fig. 10.)

FIG. 9.

Showing the suspension of the uterus to the anterior abdominal wall by suture about the round ligament.

FIG. 10.

Showing the suspension by ligature through the fundus.

Boldt and Leopold have *hung the uterus directly by sutures passed through the fundus.* (Fig. 10).

This is not unlike the original device of Prof. Koeberle who was the first to open the abdomen for the simple purpose of correcting a retroflexion. He removed the left ovary, and by means of its stump and the left tube clamped into the lower angle of the wound, thus fixed the uterus in anteposition, where it was found six years later.*

The advantages of Hysterorrhaphy are that it has unquestionably both cured many cases of misplacement, and relieved the distress of a large number of patients upon whom it has been performed.

The disadvantage has been a percentage of failures in which the uterus has slipped back into its old position. I attribute these disadvantages to a fault in the mechanism of the operation as hitherto performed, for by the method catching the uterus by the broad ligament on its anterior face and suturing it to the abdominal wall it is necessarily left in such a position that *it must hang upon the sutures,* and such adhesions as are formed at this point, and at the central incision. This hanging is a disadvantage, and is by no means a satisfactory substitute for the natural condition of mobile equipoise. It is also coupled with another mechanical disadvantage in that *it is by this means feathered backwards.*

I have succeeded in remedying this difficulty *by the simple plan of reaching over the tops of the broad ligaments, and lifting the uterus by the ovarian ligaments* (*v.* Fig. 11), thus necessarily throwing it into anteflexion just as the body of a man would be bent forwards if he were caught by the shoulder-blades, and drawn up against the ceiling. Three of these cases have been operated

*Gastrotomie dans un cas de Retroversion uterine. Gastrotomie avec ovariotomie, dans le but de fixer l'uterus d'une maniere permanente a la paroi abdominale. E. Koeberle, Strassbourg, 1877.

upon in this Hospital. The results attained have thus far surpassed my expectations, and seem about to realize the ideal method of hysterorrhaphy after which I have been striving since my first original work in this line.*

Ten days after thus raising the uterus by the ovarian ligaments I have in each case found the cervix well back in the vagina and the body of the uterus lying upon the anterior vaginal wall, no longer hugging the abdominal wall, from which it is separated by a distinct interval. Its posture is thus one of marked anteflexion, from which all moderate efforts fail to dislodge it. Any efforts to displace it backwards simply results in carrying the corpus uteri up against the abdominal wall.

The technique of the improved operation is as follows: Careful preparation of the patient for laparotomy. As thorough an aseptic regime on the part of the operator, assistants, instruments and field of operation as for the greatest abdominal operation. As soon as the patient is placed upon the table all genital hairs must be shaved off and the urine drawn. The incision is made 1½ inches in length, nearer to the symphysis pubis than in case of abdominal section for diseased tubes.

FIG. 11.

OV. is the right ovary; between this and the abdominal wall lies the ovarian ligament which is sutured to the abdominal wall by *s*.

The next step is the insertion of six sutures into the abdominal *parietal peritoneum*, three on either side of the lower angle of the wound (*v.* Fig. 12). These are brought out on either side and grasped by two pairs of forceps. The index and middle fingers then go down into the pelvis to seek and

FIG. 12.

Showing the six ligatures passed through the parietal peritoneum and temporarily grasped by forceps on either side.

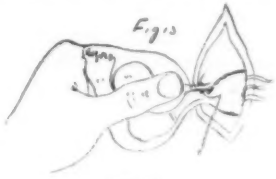


FIG. 13.

Showing the fallopian tube and ovary grasped in the right hand while the needle with a leader is passed under the ovarian ligament, ready to carry through one of the parietal sutures already in place (Fig. 12).

raise the uterus from its retroflexion. Before the fingers are withdrawn, the ovary and tube of one side are caught and drawn out through the incision. In this way the ovarian ligament is brought into plain view and within easy reach, and the three ligatures on the same side, already passed through the parietal peritoneum, are conducted by means of a carrier (Fig. 13), in the order in which they lie from within outward, around the ovarian ligament, midway between corpus uteri and ovary.

These are not to be pulled up and tied at once. The ovary and tube are dropped back into the peritoneal cavity and the ligatures left untied in the grasp of the forceps until the three ligatures of the opposite side are in the same way passed around the other ovarian ligament. Both ovarian ligaments are thus caught by ligatures connecting them to the abdominal wall. Before tying these ligatures it is necessary to slip the index finger around the uterus on both sides, making sure that neither intestines nor mesentary have become entangled in any of the ligatures, or in front of the uterus. If all is clear the ligatures may then be

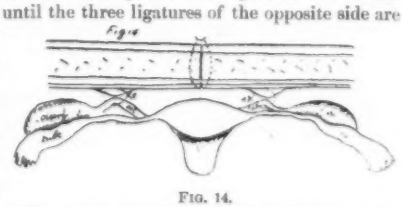


FIG. 14.

The sutures embrace the ovarian ligaments, peritoneum and some of the muscle in the abdominal wall. The uterus hangs anteflexed in the middle and ovaries and tubes at the sides.

FIG. 15.

FIG. 16.

drawn up one by one, tied firmly, cut short, dropped, and the abdominal wound closed. The result is seen in Fig. 14.

Adhesions form at once (Fig. 15), but these soon stretch by the simple weight of the uterus (Fig. 16), so that within two weeks the corpus uteri sinks on to the level of the anterior vaginal wall, to the position it now occupies in all my cases.

These delicate filaments of drawn out adhesions serve effectually to prevent any backward rotation of the uterus. If the cervix tends to descend in the vagina a pessary must be worn.

The three cases which follow were operated upon in this Hospital, and present results similar to those obtained in each of the cases in which this method has been employed, I present them therefore as typical.

CASE I.—Mrs. W., age 28, mar., 3-Par, youngest four years old, had puerperal fever after her last confinement, and has ever since been a constant sufferer with distress in head and back, making her at times so nervous that she "fears she will become crazy." When she first came into my office she was in a wild, excited condition. She had for a long time been almost constantly confined to bed. I found a large relaxed vaginal outlet associated with a sharp retroflexion of a large infiltrated fundus uteri. In the spring of this year the outlet was repaired, and at the same sitting I raised the fundus up against the abdominal wall, and passed a suture through the abdominal parietes and corpus uteri, by means of a large curved needle, *without opening the abdomen*. The perineum healed rapidly, and gave strong support at the outlet, but the single stitch, which was removed in the second week, had been insufficient to cure the displacement permanently, as the uterus soon rolled back into the sacral hollow.

On Oct. 16, 1889, I made an abdominal incision close to the pubes 1½ in. long, raised the uterus into anteflexion and *attached it by its ovarian ligaments to the anterior abdominal wall*. Two silk sutures were used on each side. Drainage tube used. She rose from bed in three weeks, and left the hospital after four weeks. The outlet was tight, the cervix well back, and the anterior face of the uterus lay upon the anterior vaginal wall in easy anteflexion, quite mobile and not touching the scar in the abdomen, but I could not throw it back beyond the abdominal scar.

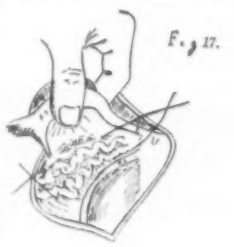


FIG. 17.

Figure showing method of ligating ovarian veins in the angle between the ovarian hilum and the round ligament.

CASE II.—Mrs. H., age 21, 3-Par. Extensive relaxation of the vaginal outlet with a sharp retroflexion of the body of the uterus which lay with fundus lower than cervix in Douglass' pouch.

I restored the pelvic floor in April, at the same time catching up the uterus by a suture passed through the body, and through the abdominal walls. The vaginal operation healed perfectly, but the uterus soon dropped back, in spite of a repetition of the suspensary operation without anaesthesia, and no local treatment or pessary served to keep it even for a short time in place.

Oct. 17, 1889, I performed hysterorrhaphy by the new method described, tying at the same time the enormous varicose ovarian veins on each side. (Fig. 17).

No drainage tube was used.

She made a rapid and perfect recovery, leaving the hospital Nov. 15.

She was examined by Dr. Neal of this city, and several others interested in the new operation, who verified the apparently perfectly natural position of the uterus.

Case III. Mrs. S., a patient of Dr. Radcliffe Cheston, of Philadelphia, is 41, and has had eight children, the last 5½ years ago.

Last spring I repaired a large open vaginal outlet and at the same time lifted the uterus and fixed it to the abdominal wall without incision as in the other cases.

This soon dropped back and I performed hysterorrhaphy Oct. 29th, 1889. The uterus was easily raised and two sutures passed under the ovarian ligaments of each side raising it to the abdominal wall. No drain.

She has made a rapid recovery, and the uterus is in a position of anteflexion, the body lying on the vaginal wall and the cervix well back in the pelvis, a position from which no ordinary moderate efforts can dislodge it. She has since returned home.

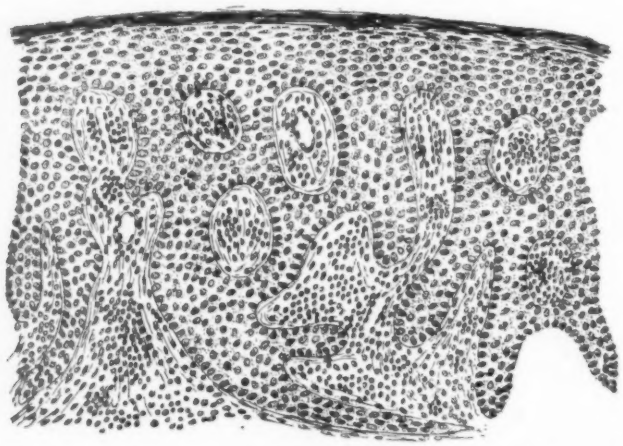
In conclusion I wish to state that my effort thus far has been to discover an operative method which will cure certain obstinate retroflexions. Whether the cure of the retroflexion will, in all cases, relieve the patients of their sufferings is yet to be determined, and is of course the more important question.

[*Note*, January 26, 1890. I have seen these three patients within a few days, and their condition remains as reported.]

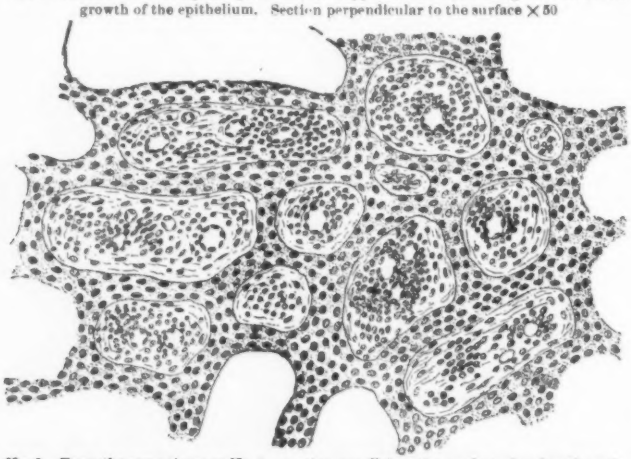
Amer. Jour. Obs., Jan., 1887, and *Amer. Jour. Obs.*, May, 1888.

ATYPICAL EPITHELIAL GROWTHS.

At a meeting of the Hospital Medical Society, held November 18th, 1889, Dr. COUNCILMAN exhibited some microscopic slides showing the growth of the epithelium downwards into the cutis. In all cases where in consequence of chronic inflammation of any kind, there is a granulation tissue formed beneath the epidermis, there is a growth of the epidermis into such tissue. Sometimes it only appears as prolongations between the papillae, but in most cases there is a much more extensive growth. These epithelial projections communicate and there is formed a branching system of epithelium beneath the skin. Pearly masses may be formed in this and a perfect histological picture of an epithelioma be produced. It is a resemblance in structure only, for as soon as a dense connective tissue is reached the growth stops. It seems almost certain that this epithelial growth is inside of the lymphatic vessels, for the network is almost identical in its general features with the network of lymphatics. In many cases it can be demonstrated that some of these long masses of epithelium lie in canals with definite walls and lined with endothelial cells. In all cases there does not seem to be that sharp boundary between the connective tissue and epithelium that is met with in the normal tissues. Even in the epithelioma the limits between the two tissues are sharper than in this. In such cases the epithelial growth seems to be due rather to a lack of resisting power in the connective tissue than to a special activity on the part of the epithelium, for as soon as a normal connective tissue is reached the growth does not penetrate it. We have in other parts of the body examples of such epithelial growth, in the lungs in cases of interstitial pneumonia and around old tuberculous cavities, also in the liver in all varieties of cirrhosis, but especial in the hypertrophic form.



No. 1.—Section of skin adjoining an ulcerated syphilitic bubo, showing the downward growth of the epithelium. Section perpendicular to the surface × 50



No. 2.—From the same tissue as No. 1. Section parallel to the surface, showing the network of epithelium below the surface × 50.

RICHARD von VOLKMANN.

An address delivered in the Berlin Medical Society, 4th of December, 1889, by RUDOLF VIRCHOW (*Translation*).

Gentlemen:—It becomes my painful duty at the opening of our meeting to remind you of the great loss which German medical science has suffered in the death of our colleague Richard von Volkmann. For years he has been one of the chief ornaments of our science, one of the foremost figures in the department of practical surgery, one of the greatest teachers in the theoretical sciences. We were wont to regard him as a steadfast representative of German surgery, as one of the few leaders still remaining from the great days of the conflict when German surgery once more appeared in her full glory and armed with the modern appliances.

He has departed just at the time when we are preparing for the great International Congress, and it may be said that he is the first victim of this Congress. Although suffering much, and needing care and rest, he went from Jena to Halle to attend a meeting of the preliminary committee of the surgical section; there he took part in the deliberations with great zeal and proposed measures for carrying out the plans which were adopted. On his return from Halle to Jena he was seized with an inflammation of the lungs which quickly carried him off. Those who saw him a few weeks ago as I did, must have seen that the best strength of the man was broken, but no one had given up the hope that it would be possible for him, furnished as he was with a rich store of knowledge gained by arduous labor, to take part in the Congress and there appear as of yore one of the foremost representatives of our science.

I may briefly call to your mind the many names in the course of the last decennium which German surgery must mourn. Our Langenbeck and Roser who were of about the same age have gone hence. Of the surgeons of the war Wilms, and Wagner, and Busch have departed from the scene. Hueter, Simon, Maass, not to speak of the aged Middeldorpf, who also belonged to this younger school, one after the other have gone. But this in a measure accords with the experience of every physician, especially in former days, who knew when he entered upon his calling that men do not grow old in the profession to which he had devoted himself. The few of us who attain a higher age, view with a forsaken look the many empty places which we see around us, and think of the gaps which the death of so many of our colaborers has left behind.

It is not my purpose to make an oration on Volkmann. You all know what his chief services were. I will only remind you that he belonged to the number of those surgeons, who following the example of our Bardeleben adopted the antiseptic treatment at an early date shortly after Lister had introduced it. In this sphere he had the greatest and most brilliant results. He has advanced by his independent work all the different branches of surgery—the purely operative surgery, the treatment of wounds, the treatment of surgical diseases and especially the treatment of tumors. Finally I must mention that work of his by which he has so helped the great circle of physicians, his "Sammlung Klinischer Vorträge" the first example of such work in German literature. It has given many practicing physicians the opportunity of getting a clear idea of certain separate subjects which they could not derive from text-books. To have introduced this method of popularizing and of reviewing for the benefit of the many practicing physicians the most advanced views in medical science, is a service which will be recorded in the history of the literature of our time. Finally I need only remind you that it was he, along with Langenbeck, who not only founded the German Surgical Association but brought it to that prëeminence which it holds at present and from which we hope it will never recede.

I ask you in memory of this illustrious man to rise from your seats.

Upon Monday, January 6th, 1890, the various courses of medical instruction, lectures and clinics previously advertised in connection with the Johns Hopkins Hospital, were inaugurated in accordance with the programme (*see p.* 27). Graduates in medicine, resident in Baltimore, will be admitted without charge to the lectures and clinics in the amphitheatre by registering at the office of the Hospital and obtaining ticket of admission to the same.

PROCEEDINGS OF SOCIETIES.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Meeting of November 4th, 1889 (Continued).

Dr. WELCH in the Chair.

Radical Cure of Hernia.—Dr. BROCKWAY.

Dr. BROCKWAY reported and exhibited a case of hernia operated upon by McBurney's "open" method.

Mary E. L., age 14. Small bubonocele in right inguinal region for four years, reducible; truss efficient but uncomfortable.

Patient recently had two operations for tubercular glands of neck. Operation for hernia and the healing of the wound followed normal course. Patient kept in bed five weeks. Linear ulcer completely healed in nine weeks, with a firm depressed cicatrix. Permanent cure promised.

Compound Depressed Fracture of Skull.—Dr. BROCKWAY.

Dr. BROCKWAY also reported a case of extensive compound depressed fracture of skull, and exhibited the patient.

Willie O., age 11, Virginia. Admitted to Johns Hopkins Hospital, September 7th, 1889. Twenty-two days before admission patient received a crush of the right side of head in a runaway accident, a dump-cart falling upon his head as he lay on the ground. Was unconscious for eight hours, vomited, and had extensive hemorrhage from nose, mouth, right ear; and two small punctured wounds of scalp.

Family physician stated that the depression above right ear would admit a man's wrist, and after probing the wound with a hair pin, ordered wet dressings and considered his duties done. A large tumor was formed beneath scalp, so that both eyes were closed for a week. Bleeding ceased from nose and mouth in four or five days. Discharge from ear became serous on second day, then purulent and ceased in a week. After five days appetite returned, bowels and micturition became normal; never any paralysis, only a general weakness; only abnormality was a rather marked internal squint. Never any mental or cerebral symptoms. In two weeks, pus was noticed in punctured scalp wound, and about a "wine-glass full" was thereafter expressed daily. On admission, patient was well nourished, appetite good, temperature and pulse normal. Could walk unaided, but was very weak. Mind clear and active; internal strabismus and deafness in right ear were his only symptoms. In right parietal region a small wound led to a bag of pus beneath scalp, filling an extensive depression. Immediate operation under ether. Scalp shaved and incision made and gradually extended from right frontal, through right parietal, through occipital and around to left parietal regions. Depressed bone was comminuted and its pericranium loosened, acutely depressed above and shelving in squamous region. Depth about ½–¾ inch, length 4 inches and breadth 3 inches. Linear fracture also extended farther than could be traced, posteriorly and into left parietal bone. Necrosis of fragments was feared, should any be left, so part of frontal, squamous position of temporal and most of right parietal bones were removed, all being bathed in pus. Dura seemed everywhere normal and showed no puncture. Middle meningeal artery not seen, nor its groove found in the bone removed. Irrigations of 1–50,000 bichloride. Scalp loosely brought together. Patient was practically dead at close of rapid operation. No radial pulse and no respiration, yielded promptly to artificial respiration, stimulants, etc., vomited considerably for two days, showed some right facial paralysis, after operation, and marked ankle clonus and increased patellar reflex on right side. At end of first week patient was reading daily papers. Highest temperature was 102 degrees on tenth day from retained pus. Suppuration was profuse from the first. Complete healing in seven weeks after operation, with a pulsating area beneath right parietal scalp 3 by 3 inches. Some protective cap may have to be worn for life. Only mental or physical symptoms from injury is complete deafness in right ear. I suppose the fracture passed through petrous portion of temporal, far into base of skull, accounting for original hemorrhage from nose and mouth and ear.

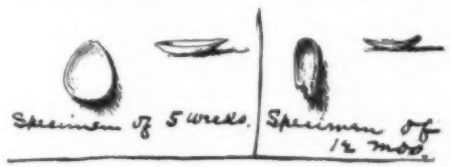
Dr. Kelly said any operation for the radical cure of hernia, to be successful, must be a difficult one. Nature's method of protecting her weak points in the abdominal wall is by an interlacement of powerful fibrous bands, and this most efficient natural support we have no means of imitating. Scar tissue is always a poor substitute, liable in time to break down. The omentum has such a fashion of working itself into cracks and crannies, and then of dilating them, and forcing more in, until it either becomes adherent and plugs the passage, or allows the bowel to slip in as well, that it is a great wonder to me not that so many, but that more hernias do not occur, more especially after the abdomen has been opened in the median line

Two years ago a physician called me in to see a patient in a typhoid condition, with a fecal fistula recently formed in the scrotum. I found a gaunt old man who had acquired an inguinal hernia upon jumping down a bluff at the battle of Fort Pillow in the recent war, this had become in time an incarcerated scrotal hernia, a short time before strangulated, and had broken through at the lower part of the scrotum, where it was constantly discharging a foul fecal mass into the bed. The bladder was distended above the umbilicus. At the operation a cul-de-sac of the gut, three inches in length, was found projecting from its lumen down through the inguinal ring into the relaxed scrotum.

It was a case of Littré's hernia. At the upper posterior portion of this cul-de-sac the right testicle projected into its lumen; at this point was the only sound tissue left. After trimming away all the diseased tissue down to that drawn over the testicle; this remained connected by a broad tongue with the lumen of the bowel above. As there was nothing else left to close the opening I turned the *testicle* into the hole in the bowel, suturing it on all sides, and completely closing the hernial orifice. It healed well in place and left but a very small fistula. The bowels moved regularly afterwards per anum. His death occurred in three weeks from a violent cystitis brought on by the overdistension of the bladder.

Foreign Bodies Removed from the Eye.—Dr. SAMUEL THEOBALD.

Dr. Samuel Theobald exhibited under a low-power microscope the following foreign bodies removed from the eye. They were all, with perhaps one exception, of a similar nature, being parts of the capsules of minute seeds. The exception appeared to be a portion of the wing-covering of of a small insect. They were all concave upon one surface and convex upon the other, and each one had been removed from the surface of the cornea, to which it was attached by its concave side. The points of interest were that the peculiar shape of these bodies had caused them to take an exceptionally firm hold upon the cornea, while their structure enabled them to resist for long periods the solvent action of the fluids of the eye. Being,



Eight times natural size.

moreover, semi-transparent, their true nature had not in every instance been easily recognized. Of the eight foreign bodies of this character which were exhibited, three had remained attached to the cornea for periods less than two weeks, two for five weeks, one for two months, one for three months, and one for a whole year. Ulceration of the cornea beneath the foreign body had occurred in almost every instance, and in three of the cases small blood-vessels had developed upon the cornea, running from the conjunctiva to the point of attachment of the foreign body. Several of the eyes had previously been treated without the presence of a foreign body having been suspected, and in one case "caustic" applications were said to have been made. After the removal of the foreign bodies the eyes all recovered quickly under simple treatment.

Tuberculosis in an Infant of Four Months.—Dr. TOULMIN. (See *Hospital Reports, Vol. II, No.* 1).

Dr. Abbott said the case reported is interesting not alone from a clinical but also from a hygienic standpoint. It is clearly an instance of infection in a child having no family history of tuberculosis. The source of this infection appears to have had its origin somewhere in the premises occupied by the child. The rooms, as stated, had, immediately before the time during which they were occupied by the patient, been the abode of the disease.

That it is possible for a tuberculous patient to infect the room in which he is living, has been demonstrated by Cornet in his well-known work on the distribution of the tubercle bacillus outside the body ("Die Verbreitung der Tuberclebacillae ausserhalt des Körpers," Zeit. f. Hyg., Bd. V, Heft 2). This case gives an important hygienic lesson and points directly to the necessity for a more careful disinfection of all rooms, clothing, furniture, etc., that have been used by tuberculous patients. Disinfection is a valuable prophylactic agent against the spread of this malady, and its importance should be recognized by all medical men.

Submucous Fibroid of the Uterus.—Dr. ROBB.

This case came under my observation last summer in the Kensington Hospital for Women (Philadelphia), and is particularly interesting from the fact that it was diagnosed and treated as an inversion of the uterus up to the very time of operation.

Mrs. W., German, age 47, married 29 years, VI.-parous, oldest child 22, youngest 7 years old, had suffered from menorrhagia since her last confinement, and this for several months past had become metrorrhagic, accompanied by severe uterine pain. She was excessively anæmic and utterly unfit for any activity, and dragged herself into the office with assistance of all the chairs on the way. At my first examination, July 6th, I found a tumor in the vagina as big as a goose's egg, in size and appearance like an inverted uterus filling the vaginal vault, and extending to within an inch of the outlet. Bimanually I could not detect the fundus or body of the uterus in the pelvic cavity, where there appeared in its place a marked depression such as is usually found in inversion of the uterus. Using Sims' speculum the round red mass was brought well into view, bleeding profusely on the slightest touch. It was not sensitive at any point. Passing a sound around the tumor it seemed to be attached to the vagina at its upper part, where the sound was stopped on all sides. Upon seizing the mass and twisting it on its axis the upper part of the vagina appeared to move with it as would be the case if it were an inversion of the uterus. I then had the patient etherized, when, to my surprise, the finger in the vagina easily passed around the whole mass, up through the cervix to the fundus uteri; and upon assisting myself with my abdominal hand, I was able to discover a pedicle attached to a *depressed fundus*. It was at once clear that the mass was a pediculated fibroid tumor, with a short pedicle, attached to the fundus uteri, which had become partially inverted. It had so completely dilated the cervix and lower portion of the uterus that the vaginal and uterine walls had become continuous. It is probable that in time this tumor would have carried the fundus still further downwards, finally producing an *inversio uteri*, such as has already been observed. The operation was proceeded with at once. The pedicle, which was a half inch broad, was split with scissors close to the tumor, and transfixed with a silk ligature, surgeon's no. 4, which was tied both ways and cut short. I then washed out the cavity of the uterus with hot distilled water by means of Dr. Kelly's two-way catheter, and packed uterus and vagina with iodoform gauze.

On the third day gauze was taken out and ligatures removed by slight traction. Upon packing the uterus with the gauze the indentation at the fundus disappeared, and the uterus contracted quite slowly, recovering its normal size and position in three days. The patient made a prompt recovery and is now well, being able to attend to all her duties. A point of great interest in this case is that it had been diagnosed by several physicians, two of them specialists, as a chronic inversion of the uterus.

Dr. Kelly said Dr. Robb and his consultants were clearly both right and wrong at the same time. If the case did not prove as at first supposed *inversio uteri totalis*, it did prove to be *inverso uteri partialis*. And it teaches very emphatically the lesson that it is always wiser in making a diagnosis to presume that the *more serious condition* is present, and only to adopt the simpler after careful exclusion.

Very serious mistakes have occurred from presuming the presence of a simple condition and proceeding to operation. Thus very eminent operators have removed a pediculated fibroid tumor and found to their alarm that they had also performed a partial hysterectomy. I know of one case where a doctor started out to remove a "fibroid" tumor from the neck of the uterus, and unwittingly removed the whole uterus, which was in reality affected with cervical cancer. The doctor called upon me to go several miles to stop the alarming hemorrhage, which I did, and the patient lived.

The several conditions to be distinguished are *inversio uteri totalis*, *inversio uteri partialis cum tumore*, and *fibroma uteri pediculata*. The rectal examination is above all valuable in furnishing evidence of the pit of depression when there is a complete or partial inversion either fundal or lateral. A broad, soft, sensitive pedicle is always most suspicious. The surgical rule is a good one, to amputate just above the convexity of the tumor and not close to the uterine surface. Dr. Kelly further detailed the histories of important cases by Freund, Cruveilhier, and Werth, with illustrations on the blackboard.

Dr. HUNTER ROBB, *Secretary*.

Meeting of November 18th, 1889.

President WELCH in the Chair. Number present 39.

Three cases of Hysterorrhaphy by the new method.—Dr. KELLY. (See page 17 of the *Bulletin*.)

Atypical Epithelial Growths.—Dr. COUNCILMAN. (See page 20 of the *Bulletin*.)

Anomalies of the Uvula.—Dr. MACKENZIE. (See *Hospital Reports, Vol. II, No.* 1.)

A case of Arsenical Pigmentation.—Dr. LAFLEUR.

Katie E., age 14, had scarlet fever in July, 1882, and during convalescence her knees and ankles began to swell. The enlargement was very gradual, was attended by very slight fever, and did not necessitate confinement to bed. Subsequently the wrists, phalangeal joints, and to a slight extent the elbows became involved. From July, 1882, to the present time the swelling has persisted and she is now partly crippled. When first seen at the Johns Hopkins Hospital Dispensary, there was swelling with effusion in both knees and wrists; the ankles, elbows and finger joints were also enlarged. There was no valvular lesion. Ordered liq. pot. arsenit. m. ii tid.—increasing the dose by one drop every fifth day, until she took m. xv in twenty-four hours. From August 22d to September 11th she took m. xii daily. On this latter date she discontinued the treatment on account of an intense itching over her body, and four days later she noticed a dirty looking brownish discoloration of the skin on the right side of her abdomen and in both groins. Failing to remove this with soap and water she returned to the Dispensary for advice. The following note was made on September 17th:—"General condition good—the articular swelling has greatly diminished. There is a dirty brownish discoloration of the skin of the abdomen, occurring in irregular patches which merge gradually into skin of normal color. On the legs there are more sharply defined and even darker areas of pigmentation, and smaller pigmented areas are seen on the thighs and arms. The skin is rough and dry; there is slight desquamation and at the edges of the pigmented areas there is an erythematous condition of the skin. She complains of itching which began ten days ago, and was not, as far as she could tell, preceded by any eruption."

A few days later she was examined more carefully; all the pigmented areas mapped out. Pigmentation most intense on the knees and upper part of the tibiae, where there are elongated sharply defined patches of a dark brownish-black color. The skin is here rough and dry, and there is slight branny desquamation. There is marked pigmentation in both groins, between the nates, about the vulva, and over the abdomen. Smaller less defined patches in the axillæ, over the elbows, the lower part of the neck, the lower dorsal and lumbar spines, on the thighs and about both ankles.

October 21st.—Pigmentation fading—still quite marked on legs.

November 18th.—No pigmentation on abdomen—still visible over tibiae.

The features of interest in this case are—1st. The intensity, and 2d. The patchy distribution of the pigment, with 3d. The sharp definition of some of the areas of pigmentation, and 4th. The fact that the quantity of the drug which produced the discoloration is known, the patient herself having kept a daily record of the doses taken. From July 23d to September 12th the total quantity of Fowler's solution taken was 546 minims. The situation of the pigmentation suggests the possibility that friction of the clothes or of opposed surfaces of skin has some influence in its production.

Literature:

OWENS—*Manchester Med. Chron.*, 1886.
CHEADLE—*Practitioner*, 1886, *p.* 90—4 cases.
MARROW—*J. Cut. and Genito-Urinary Dis.*, 1886, *p.* 178.
WILSON—*J. Cut. Medic.*, *p.* 354.

STEWART—*Canada Med. and Surg. Jour.*, 1886.
GUAILO—*Archiv. di pathologa*, 1887—4 cases.
OSLER—*Medical News*, 1887, *p.* 468.
HANDFORD—*Trans. Clinic. Soc., Lond.* 1887. *Vol. XX.*—3 cases.
LAPTHORN SMITH—*Montreal Med. Jour.*, 1889, *p.* 691.

Ligation of Varicose Ovarian Veins.—Dr. KELLY.

On October 17th I operated upon Mrs. H. in the Gynæcological Department of the Johns Hopkins Hospital. She had long been under my care for the treatment of a retroflexion of the uterus, irremediable by the usual methods of treatment per vaginam. I therefore made an abdominal incision, and raised the uterus out of the sacral hollow for the purpose of performing hysterorrhaphy, by attaching it by the ovarian ligaments to the anterior abdominal wall. Upon bringing the right ovary and tube out of the incision, the ovarian veins were found to be enormously dilated, being 15 cm. (a half inch) in diameter. They appeared as great blue tortuous distended vessels, extending from the upper angle of the uterus, between uterine extremity of the tube and the origin of the round ligament, outwards under the hilum of the ovary to the infundibulo-pelvic ligament. (v. Fig. 17 in Dr. Kelly's article on Hysterorrhaphy, page 19.)

While assured that the elevation of the uterus by hysterorrhaphy would be a most important factor in improving the impeded circulation, there still remained an element of doubt as to whether veins so greatly distended could fully recover their normal calibre. I therefore tied both veins with a single ligature on the right side, and on the left side tied them in two places, as shown in the figure on the right side. The procedure is an extremely simple one, apparently free from danger. When the tube and ovary are brought out of the incision held well elevated, between thumb and forefinger as shown, an area irregularly triangular is exposed in front of the broad ligament, bounded on its lower inner side by the curved line of the round ligament sweeping downwards and outwards with its concavity downwards and inwards.

The upper border of the triangle is formed by the base of the meso-salpinx including the hilum of the ovary. The margin of the abdominal incision connecting the lowest visible point of the round ligament, with the outer limit of the meso-salpinx and ovarian hilum, forms the base of this triangle. Within this area the ovarian veins and arteries lie.

To tie these veins without danger of puncturing them, take a lower grasp of the broad ligament, catching the veins between the second finger and thumb, using the index finger to press upon, and empty them; the translucent spaces above and below the vessels are thus easily distinguished from the white opaque coats of the empty veins. A ligature can then be passed through one of these clear spaces, piercing both layers of the broad ligament below the veins on the inner or the outer side of the ovarian hilum; the ligature is again brought through the broad ligament above and tied. In this way the lumen is effectually occluded.

The ligatures are cut short and dropped, and the hysterorrhaphy proceeded with. On the outer side of the hilum it is simply necessary to pass the ligature *beneath* the veins, and to tie over the upper margin of the infundibulo-pelvic ligament.

My patient has not had an unfavorable symptom since the operation. The uterus lies in a posture of easy natural anteflexion. It would be impossible to decide by the examination alone that the uterus had ever been sutured to the abdominal wall.

Whence the pelvic pain arises in these cases it is impossible to say; it is equally impossible to say that these great distended vessels may not play a very important part in the production of the pelvic and lumbar malaise.

Fatal Hemorrhage into a large Bronchocele.—Dr. OSLER.

Mary M., age 44, an inmate of the insane department, Philadelphia Hospital, and the subject of goitre for an indefinite and unknown number of years.

She was up and about helping at her ordinary work, when she became faint, breathless and blanched, and died within a few hours. Dr. Charles K. Mills kindly allowed me to make the examination. The woman was well nourished, the skin of marble whiteness. An immense goitre occupied the entire space between the chin and sternum. In the lateral regions of the neck the swelling extended towards the clavicles and below the skin of the upper half of the sternum. On section, a space was opened between the bronchocele and the sternum, containing large clots, which, on dissection, were found to have come from one of the lower cysts of the goitre, which had ruptured. The blood extended into the cellular tissue of the neck and beneath the sternum into the anterior mediastinum, covering the aorta and upper part of the pericardium. The hemorrhage passed behind the pharynx and down the course of the œsophagus for two or three inches. On removal the windpipe and gullet were found almost completely embedded in the goitre, and the former seemed at its lower part somewhat compressed. There was œdema of the left lateral wall of the pharynx and the left ary-epiglottidean fold. The bronchocele weighed $1\frac{4}{10}$ kilograms, and was of the parenchymatous variety, with much calcareous and fibroid change; here and there were cysts. The thoracic and abdominal viscera presented no special change. The case illustrates a very unusual accident in the history of goitre. It is well known that hemorrhage frequently occurs into the cysts; but I have not met with an instance in literature where death resulted from it. Whether she died directly from the loss of blood or from the mechanical effects of pressure is not easy to determine; probably the latter played the most important part, though the amount of clots beneath the skin in the lateral cervical and sternal regions was considerable, and the extreme pallor suggested death from hemorrhage.

Dr. HUNTER ROBB, *Secretary.*

HOSPITAL JOURNAL CLUB.

Regular meeting November 21st, 1889.
Reports were made as follows:

Diseases of Children.—DR. W. D. BOOKER.

The cœliac affection in children. *Gibbons.*
(*Edinburgh Med. Journal*, Oct. and Nov., '89.)

Fat in the feces of dyspeptic children. *Tschernow.*
(*St. Petersburg Med. Woch.*, '89.)

The use of strophanthus in children. *Demme.*
(*Reference in Arch. for Pediatrics*, Oct., '89.)

Hypertrophy of the tonsils in childhood. *Uspenski.*
(*Jahrsbuch f. Kinderheilkunde*, 29–1.)

Tongue-tie. *Tassins.*
(*Reference in Lancet*, Aug. 31st, '89.)

Contribution to the pathogenesis of bacterial gastro-intestinal diseases of sucklings. *Escherich.*
(*Wiener Med. Presse*, Nos. 40 and 41, '89).

Laryngology.—DR. MACTIER WARFIELD.

On the treatment of the so-called phthisis of the larynx, with remarks on primary laryngeal tuberculosis and its curability, by *Dr. J. Sedzeak*, Warsaw.
(*Journal of Laryngology and Rhinology*, June and July, '89.)

The curability of laryngeal phthisis, by *H. Clinton McSherry, M. D.*
(*Trans. Med. and Chir. Faculty, Md.*, 1889.)

Menthol in laryngeal tuberculosis. *Ossendowsky.*
(*Wiener Med. Woch.*, No. 24, '89.)

Lactic acid in laryngeal tuberculosis. *Galymetz.*
(*Idem.*)

Adenoid vegetations of the naso-pharynx. *Lubet-Barbon.*
(*Gaz. d. Hop.*, No. 67, 1889.)

Operations on adenoid vegetations. *Krakauer.*
(*Berliner Med. Woch.*, No. 5, 1889.)

Otology.—DR. ROBERT L. RANDOLPH.

Portion from von Bergmann's Article—"Die chirurgische Behandlung von Gehirnkrankheiten."
(*Arbeiten a. d. chirurg. Klinik der Univ. Berlin.*)

Case of cerebellar abscess, due to ear disease, successfully operated upon. *Macewen*, Glascow.
(*Arch. of Otology*, Vol. XVIII, No. 3.)

Regular meeting December 5th, 1889.
Reports were made as follows:

Hygiene.—DR. ABBOTT.

Bacteriological analysis of the air of the Boston City Hospital with some carbon dioxide determinations. *Greenleaf Tucker, S. B.*
(*Report of the State Board of Health of Mass.*, 1888.)

The distribution of the tubercle bacillus outside the body. *Cornet.*
(*Zeit. für Hygiene*, Bd. 5, Heft 2.)

Neurology.—DR. H. M. THOMAS.

Cerebral localization in its practical relations. *Ferrier.*
(*Brain*, July, '89.)

On the diagnosis of diseases of the corpora quadrigemina. *Nothnagel.*
(*Brain*, July, '89.)

Gynaecology.—DR. ROBB.

An analysis of 1322 recent unselected American laparotomies. *Editorial.* (*Pittsburg Med. Rev.*, Sept., '89.)

Tuberculosis of the genitals, by *Verth*, in Kiel. (*Cent. für Gynaekologie*, July 20th, '89.)

Ventro-fixation of the uterus. (*Cent. f. Gynaekologie*, Aug. 10th, '89.)

Auto-infection in puerperal cases. (*Münchener Med. Woch.*, Nov. 25th, '89.)

Regular meeting December 19th, 1889.
Reports were made as follows:

Dermatology.—DR. T. H. BUCKLER.

Personal observations of leprosy in Mexico and the Sandwich Islands, by *Prince A. Morrow, A. M., M. D.* (*N. Y. Med. Journal*, July 27th, '89.)

Inoculations in leprosy. *Arning.* (*Trans. of Derm. Soc., First Congress in Prag*, June, '89.)

Genito-Urinary Surgery.—DR. BOND.

Note sur les conditions de réceptivité de l'appareil urinaire a l'invasion microbienne, par *Prof. Guyan.* (*L'union Medicale*, May 4th, '89.)

The question of the radical cure of deep urethral stricture. *Keyes.* (*Med. Record*, May 25th, '89.)

Ophthalmology.—DR. RANDOLPH.

Accidents oculaires et menstruation, par *M. A. Puech.* (*Arch. d'Oph.*, T. IX, No. 5.)

The cause of senile cataract, by *Dr. W. Schoen.* (*Arch. of Ophth.*, Sept., '89.)

A case of hysterical amblyopia, by *Jas. Milner, M. R. C. S.* (*The Lancet*, Dec. 7th, '89.)

NOTES ON NEW BOOKS.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Edited by J. BATTY TUKE and G. SIMS WOODHEAD. *Edinburgh, Young J. Pentland*, 1889.

This volume, representing the work of the first year of the Laboratory of the Royal College of Physicians of Edinburgh, fully justifies the departure made by this body, in adding to its function as an examining board, the work of special research. Among the papers of special interest, may be mentioned Dr. Woodhead's on *Mercuric Salts* as antiseptics, and on *Tubes Mesenterica and Pulmonary Tuberculosis*, Dr. Bruce's on *Absence of the Corpus Callosum*, and two interesting obstetrical papers, one by Dr. Berry Hart on the *Separation of the Placenta*, the other by Helme on the *Muscular Fibres of the Uterus*.

The recent establishment of research laboratories in connection with medical corporations in Edinburgh and in London suggests the practicability of similar foundations in connection with the larger medical societies of this country, such as the College of Physicians of Philadelphia, the Academy of Medicine of New York and the Medical and Chirurgical Faculty of Maryland. In addition to original work, a function of the greatest utility would be the examination of morbid specimens, sputum, etc., for members of the societies.

Die Syphilis Des Herzens. By Dr. T. LANG. (*Wien, Braumüller*, 1889.)

A monograph upon this subject, containing original observation and a statistical review of forty-four cases collected in the literature.

It is by no means clear that all of the cases here collected really belong to syphilis. If we place all cases of fibrous myocarditis met with in syphilitic persons in this category, the list would be enormously extended. In just one-half of the cases collected by Dr. Lang is there a record of distinct gummata.

A Text-Book of General Therapeutics. By W. HALE WHITE, M. D. (*London and New York, MacMillan and Co.*, 1889.)

This series of lectures, delivered at Guy's Hospital, will prove an excellent manual for practitioners. There are capital chapters on *Lavage, Electricity, Massage*, the *Weir Mitchell Method, Climate, Baths, Hypnotism, Metallo-Therapy*. The section on *Hypnotism* is particularly clear and good and the entire work is one from which the practitioner and the student can obtain much valuable information on the all important subject of treatment.

Traite des Maladies du Coeur. By Professeur GERMAIN SÉE. (*Paris, Lecrosnier et Babé*, 1889.)

The plan of this work differs somewhat from that followed in English or German authors. The author makes nine clinical types of cardiac trouble: the Endocardial, Valvular, Arterial, Degenerative, etc. The work is an excellent exposition of the views of the French school on the subject: one in which teachers and clinicians generally will find much of interest. We are glad to see noticed among the physical signs of aortic insufficiency the presystolic mitral murmur, first described by Flint, which has scarcely attracted the attention it deserves.

Lectures on Pathological Anatomy. By SAMUEL WILKS, M. D., and the late WALTER MOXON, M. D. Third edition revised by SAMUEL WILKS, M. D. (*London, Longmans, Green & Co.*, 1889.)

Students and teachers of Morbid Anatomy will welcome this revised edition of a work which did splendid service in its day. As a *vade-mecum* in the post-mortem room, there is no work like it in English. The description of diseases is clear, concise and practical. It forms the anatomical counterpart to Fagge's "Practice of Medicine," and together they form worthy exponents of the teaching of the great school, which Addison, Bright and Hodgkin made so famous.

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BY WILLIAM H. WELCH, M. D.,

Pathologist to the Johns Hopkins Hospital and Professor of Pathology, Johns Hopkins University, Baltimore.

AN ADDRESS DELIVERED AT THE FORMAL OPENING OF THE BIOLOGICAL LABORATORY OF THE UNIVERSITY OF TORONTO, ON DECEMBER 20TH, 1889.

I esteem it a privilege to assist at the formal opening of this Biological Laboratory and to be able to extend to this University, and to this City, congratulations for the possession of a laboratory so admirably constructed and equipped, and inaugurated with the assurance of an activity so fruitful and well directed. The existence in this place of such a laboratory is not a matter of local pride alone. It may safely be predicted that its influence will be felt throughout this country, and indeed wherever interest in the biological sciences is found.

With such opportunities as here exist, we may feel assured that this country will increase and expand the honorable reputation already gained by its contributions to biological knowledge.

Biology in its widest significance is the study of life in all its forms and activities, both normal and abnormal. No branch of human knowledge can exceed this in interest and importance; none has made greater advances during this century of scientific progress; none has achieved greater triumphs for human welfare; none has influenced more profoundly modern philosophical thought.

I am here to say a few words concerning one department of biology, namely, pathology, particularly in its relations to general biology.

Pathology is the study of life in its abnormal forms and activities. The relations of pathology to practical medicine are necessarily so essential and intimate, that the broader conception of this science as a part of biology is in danger of being lost from view. I deem it, however, important for the scientific status and advancement of pathology to keep in mind and to emphasize its relations to general biology, not less than those to practical medicine.

In so doing, it is not intended to detract in any degree from the practical value of pathology and its applications to the diagnosis and treatment of disease. When we consider that pathology embraces the investigation of the causes of disease, of the anatomical changes produced by disease in the organs and tissues of the body, and of the alterations in function resulting from disease, it is plain that pathology must constitute the scientific basis of practical medicine. This is not the less true because the prevention and cure of disease have not kept pace with the advances in our knowledge of the nature and causes of disease, and of necessity can not do so. Preventive and curative medicine, however, is constantly making beneficent application of pathological discoveries, and the most intelligent and efficient management of disease is becoming more and more that which is founded upon the most accurate knowledge of its nature and causes.

Inasmuch as the general public naturally interests itself but little in any side of medicine other than the treatment of disease, there is not sufficient general appreciation of the immense progress in the science and art of medicine of to-day as contrasted with that of a half century ago. The history of medicine is in large part the history of schools of doctrine. Stately superstructures of sweeping generalizations and attempted explanations were erected only to be overthrown because it was impossible to build upon a firm foundation of facts. To-day it is our conviction that these fundamental facts can be discovered in no other way than by observation and experiment. The adoption of this, the only scientific method of investigation, has, with the aid of modern instruments and devices, not only greatly enriched medical science, but it has overthrown the era in which, among scientific physicians, exclusive schools of doctrine can prevail. The scientific physician no more than the scientific chemist, can yield adherence to any exclusive dogma. To the one as to the other no way which leads to truth is debarred.

By way of illustration of the achievements of modern pathology, permit me to contrast for a moment with the imperfect, meager, and confusing information of former times, the fulness of our present knowledge concerning that disease, which of all diseases is the greatest scourge of the human race. Tuberculosis causes the death of not less than one-seventh, and, in some form or other and at some period, affects probably one-third of mankind. But a few years ago, not only was the specific cause of tuberculosis unknown, but there was no general appreciation of the fundamental fact that this is one of the infectious diseases. The knowledge of the frequency and wide distribution of tuberculous disease in other parts of the body than in the lungs is an acquisition of modern pathology. The pathological anatomy of tuberculosis, which not long ago was one of the most confusing chapters in pathology, has been made clear. The unity of all the processes now known to be tuberculous, can be established on an anatomical as well as on an etiological basis. The greatest addition to our knowledge of tuberculosis, and in fact one of the greatest achievements of modern science, is the discovery of the specific living germ which causes tuberculosis. We are now enabled to study both within and without the body, the form and the properties of this germ, the conditions which are favorable and those which are hostile to its preservation and development. Who can doubt that all this increased knowledge of the most devastating of maladies is destined to help in prevention and treatment? Sanitarians convinced of the preventability of tuberculosis have already begun the warfare against its spread.

If one seeks an illustration of immediate practical results of the modern investigations of the living germs which cause disease, let him turn his attention to the revolution thereby wrought in surgical procedures. The possibility which is now in the hands of the surgeon of keeping wounds free from all external infection, is a boon to humanity not less than the introduction of vaccination.

It would be pleasant to follow still further the practical benefits resulting from pathological discoveries, but it is not my intention on this occasion to dwell upon the applications of pathology to practical medicine. I have said enough to remove any misapprehension as to my belief that pathology should be made to serve the ultimate aim of medical education, the prevention and cure of disease. This science must ever hold a foremost place in any proper scheme of medical education.

This occasion is an appropriate one to emphasize especially those scientific aspects of pathology which give it an important position among the biological sciences.

In the first place I claim that pathology as a science, quite independently of any practical or useful applications whatever, is as legitimate and worthy an object of pursuit as any of the natural sciences. In and for itself alone it deserves to be studied. Its methods are those of observation and experiment as in other biological sciences. Its subject matter is any living thing which deviates from the normal condition. It is not less interesting and important to learn the nature and causes of abnormalities in form and function than it is to become familiar with the norm, and when this knowledge may aid in the prevention and relief of suffering, added dignity and interest are imparted to the study.

As there comes a line where the distinction between the normal and the abnormal is shadowy and uncertain, so the separation between normal and pathological biology is not sharp. The province of the one encroaches at many points upon that of the other. Mutual aid is to be derived from a closer union between normal and pathological biology. The pathologist should not be content with methods of research less perfect than those employed in normal biology. He should not rest satisfied with results which stop at the mere description and classification of morbid processes. To be able to give a name to some pathological lesion, and to make it fit into some accepted scheme of classification, should not be the sole aim of pathological study. Pathological processes should be studied with the aim of elucidating their real nature, development and causes, their mutual relations and their dependence upon underlying laws. The purely descriptive phase of development of any natural science can be only temporary and unsatisfactory. The more a pathologist is embued with the spirit of modern biology, the less content will he be to stop at this descriptive phase.

In the next place it can be justly claimed that the study of pathology as a science without immediate reference to practical results is in reality the method which is most likely to yield these results as well as to bear fruit in other directions. Experience has shown that the most important dis-

coveries in science, come not from those who make utility their guiding principle, but from the investigators of truth for its own sake, wherever and however they can attain it. It is short-sighted to fail to see that the surest way to advance pathology, even in its relations to practical medicine, is to cultivate it as a science from all points of view. It is impossible to foresee what may be the practical application to-morrow of any pathological fact discovered in the laboratory, no matter how remote from practical bearing it may seem to-day.

The experiments upon animals and other investigations which have led to the present accuracy in the localized diagnosis of lesions of the central nervous system, and have rendered possible the surgical treatment of many of these lesions we owe in large part to physiologists and pathologists who had little thought of the practical applications of the results of their researches. The instrument and methods which have enabled ophthalmology to attain such perfection in diagnosis and treatment rest upon researches in physiological optics belonging to the domain of pure science. It could not have been anticipated by those who began the study of the microscopic organisms which cause fermentations and infectious diseases, that their study would lead to a revolution in surgical treatment, and would open prospects which it would now be hazardous to specify as to the prevention and cure of infectious diseases. Did time permit, and were it necessary, much more evidence of similar character could be brought forward to show that those who work in laboratories, it may be without a thought as to the practical utility of their investigations, are no less genuine contributors to the science and art of medicine, than those who study diseases by the bedside.

As has already been mentioned, pathology has to do with abnormalities, not in man alone, but in all living things, both animal and vegetable. The points of contact between animal and vegetable pathology are more numerous than might at first glance appear. The student of animal pathology can draw many instructive lessons from such subjects as the behavior of wounds and the parasitic affections in plants.

We are most of us probably inclined to think too much of the separation between the pathology of man and that of the lower animals. While there is a wide distinction in the dignity of the object of study, yet from a scientific point of view this separation is of little account. Pathological investigations of diseases of animals constitute no less genuine and valuable contributions to pathology in general, than do similar investigations of human diseases. The advancement of recent years in the education and aims of those who devote themselves to animal pathology, will serve to bring into closer relations the students of human and those of comparative medicine.

It may be useful for us to consider briefly some of the relations and points of contact between human and comparative pathology.

In the first place there are many diseases which are common to man and to animals. These can often be studied to greater advantage upon animals in which many conditions can be controlled, which are beyond our control in man. In animals every stage of development of the disease can be studied, and in general, fresher material can be obtained. We can modify in various ways external and internal conditions so as to reach a clearer comprehension of the morbid processes. Moreover the same disease may present interesting pathological peculiarities in different species of animals, so that the study of its occurrence in a single species, affords incomplete knowledge. For instance, the pathologist whose sole knowledge of such a disease as tuberculosis is derived from the study of the disease as it occurs in man, has a far less complete understanding of this affection, than one who is also familiar with the striking peculiarities of this affection in cattle, swine, fowls, and other animals.

Especial importance attaches, of course, to the study of such diseases as are communicable from animals to man, as for instance, anthrax, glanders, tuberculosis, many entozoic affections, etc., and in general these are the animal diseases which have received the most attention from the students of human pathology.

One of the most important departments of comparative pathology is experimental pathology, the value of which to human pathology has long been recognized. To make of experimental pathology a distinct specialty and to endow it with a separate professorship as is done in some foreign universities, does not seem to me to be in the direction of the most fruitful and healthy development. The experimental method is the handmaid of pathology in all its branches, and is the only means of solving many important problems. The experimental production of diseases in the lower animals affords an insight to be gained in no other way as to the causes, development, lesions and functional manifestations of many diseases. Experience, however, has shown that grave errors are likely to be committed by experimental pathologists who have no knowledge of the natural diseases and conditions of the animals used for experimentation. How often, for example, have those studying the question of experimental tuberculosis, mistaken for genuine tubercles nodules produced by parasitic entozoa and to what misleading conclusions have such incorrect observations led.

There are many general pathological processes which can be studied to better advantage in animals than in man. Such subjects as inflammation, oedema, thrombosis, embolism, and infection have been elucidated in large part by observations made on animals. Due caution is of course to be exercised in applying such observations directly to human beings. In as much as it is rarely possible for us to produce artificially all of the conditions which cause natural diseases, and as our very method of experimentation is in itself often a perturbating factor, it is no less important to study animal diseases resulting from natural causes, than it is to study the same diseases experimentally produced. Of course there are many diseases which have not yet been opened to the experimental method of investigation.

Questions of etiology and of pathogenesis are among those which have received and are destined still further to receive the greatest illumination from studies of comparative pathology. At present, probably no subject engages the attention of pathologists to a greater degree than the microscopic organisms which cause infection. If we had been confined to human beings in the study of infectious diseases, our knowledge in this direction would have been only a small fraction of what it is at present. In scarcely a single instance could the complete chain of proof required to demonstrate the causation of an infectious disease by a specific micro-organism have been furnished. The far-reaching principle of preventive vaccination or inoculation would not be known.

A most important and promising field of pathological study, at present only partly cultivated, is found in the infectious diseases of animals and of plants, not only on account of the great economic interests often involved, but also as a means of widening and deepening our conceptions as to the causes, development, prevention and treatment of infectious diseases in general. Any pathologist who is at all familiar with the remarkable and peculiar conditions under which the so-called Texas Cattle Fever of the United States develops and spreads, will realize that the complete elucidation of all the etiological factors of this disease not only would contribute to the solution of a great economic question, but also would open fresh points of view in our conceptions of infectious agents and their properties. When we consider the many conditions which it is in our power to control in studying animal diseases, and above all the possibility of submitting to an experimental crucial test our conclusions, it is clear that the study of natural and artificial infections, as well as of many other diseases in animals, is calculated to advance in the highest degree the science of pathology. It is not a small thing that questions which were once considered to be wholly transcendental, as for instance the doctrine of immunity against infectious disease have been brought within the working domain of experimental pathology.

Nor is it in the causation of infectious diseases alone that the comparative study of human and of animal diseases is destined to advance etiology. It is reasonable to expect that this comparative study will help to clear up many factors, at present obscure, in the causation of human diseases, including the influence of social conditions.

But let us take a broader view of comparative pathology than that which considers abnormalities only in man and in animals related to man in structure and function. I believe that many problems and facts in human pathology await for their complete elucidation the same application of the comparative method of study which has made of normal anatomy virtually a new science. What a barren mass of apparently unrelated facts is human anatomy when studied without reference to comparative anatomy and embryology? If knowledge is the understanding of the real nature of a thing, and how it came to be as it is, then there is no knowledge of human anatomy without the aid of comparative anatomy and embryology. How difficult and unmeaning is the old method of studying the anatomy of the human brain and how fascinating does the anatomy of this organ appear in the light of development!

A light similar in kind, if not equal in intensity, will be shed upon human pathology by a fuller insight into comparative pathology. We possess at present scarcely the rudiments of a comparative general pathology, but how useful and significant is even our fragmentary knowledge of this subject. The charm and impressiveness with which Metschnikoff has developed and presented the phagocytic doctrine is due largely to illustrations drawn from comparative pathology. It is impressive to see pictured in living forms from the lowest up to the highest, the combat with invading micro-organisms of infection. While the phagocytic doctrine can not be accepted in its entirety, it is interesting to observe that it received its origin and its chief support from observations made upon the lower forms of life, rather than from those on man and the higher animals.

The interesting and important discoveries concerning the curious parasitic organisms associated with malaria may seem to the student of human pathology anomalous and without analogy, but in Prof. Wright's admirable address to-day upon the sporozoa, we have had presented to us not only the life history of the class of organisms to which the malarial parasites probably belong, but also many examples of similar parasitic affections of lower animals. We may expect still further information concerning this interesting group of infectious micro-organisms from researches in comparative pathology.

Take for instance one of the most disputed and still unsettled problems in pathology, the conditions which cause multiplication of the fixed cells of the body, a question which is intimately associated with the still broader one of the response of cells to the action of external stimuli. Can it be doubted that if we were acquainted with the behavior of cells in all types of living things, from the unicellular organism upward, under the influence of such stimuli as cause inflammation in human beings, under the influence of losses of substance and under various other conditions, we should have a much clearer comprehension of one of the fundamental and most common pathological processes in man.

The interesting studies of heredity, by Weissmann and others, pertain in part to pathology and also illustrate brilliantly the value of the comparative method of research.

The application of embryology to the explanation of congenital malformations is familiar and has long been an acquisition of human pathology. More recent is the endeavor to refer the origin of the genuine tumors to anomalies in fœtal development. It is probable that experimental and comparative pathology also will shed much light upon the still obscure question as to the origin of tumors.

A large mass of observed pathological facts we must now accept without adequate explanation. It is often the fundamental and common morbid processes which are most obscure. For many of these we may hope to find satisfactory explanation in the results which the comparative study of pathology will afford. At present nothing is to be gained by attempting to generalize from scanty and incomplete observations in comparative pathology. We must first accumulate a store-house of facts. We need investigators who shall study pathological conditions not in man alone, or in the higher animals alone, but also in the simpler forms of plant and animal life. Something has been done in this direction, more indeed than is generally utilized in human pathology, but much more remains to be done. Conditions and processes which are difficult to comprehend in animals of complex organization often become clear in organisms of simple structure. Our pathological concepts are now derived almost wholly from observations made upon highly complex forms of life. I believe it to be no illusion to anticipate in thought a time when all forms and kinds of living matter will be included in the domain of pathology, and when pathological laws will be derived from results of investigations which begin with unicellular organisms and which end with man. By the adoption of this comparative method of study, pathology will in reality acquire greater simplicity and deeper significance than it now possesses.

As the student of normal biology does not attempt to cultivate equally the whole field belonging to his subject, so the pathologist can not be expected to cover in his investigations the whole domain of pathology as thus broadly outlined. There will be special workers in various departments. As in normal biology, so in pathological biology from the combined labors of all there will be constructed a science broader, richer and fuller of meaning than that which we now possess.

The ideas which I have endeavored to present, although necessarily in a brief and cursory manner, concerning pathology in its relations to general biology, are naturally suggested by the opening of this biological laboratory. Permit me in conclusion to say that it is in a medical school in intimate and organic connection with a university where such laboratories exist, that the highest cultivation of pathology as a science is to be expected.

Here is a favorable atmosphere, here the stimulus of allied sciences, and here the most enlightened appreciation and encouragement.

SCHEDULE OF HOURS OF MEDICAL INSTRUCTION IN THE JOHNS HOPKINS HOSPITAL.

Commencing January 6, 1890.

MONDAY.

9 a. m.—Gynaecological Operations (Private Operating Room). Dr. Kelly.
10 a. m.—General Surgery (Dispensary). Drs. Halsted and Finney.
Genito-urinary Surgery (Dispensary). Drs. Halsted and Brown.
Diseases of Skin (Dispensary). Dr. Morison.
11.30 a. m.—General Medicine (Hospital Wards). Dr. Osler.
1 p. m.—General Medicine (Dispensary). Drs. Osler and Lafleur.
Nervous Diseases (Dispensary). Drs. Osler and Thomas.
Diseases of Children (Dispensary). Drs. Osler and Booker.
2 p. m.—Throat (Dispensary). Dr. Mackenzie.
2.30 p. m.—Eye and Ear (Dispensary). Drs. Theobald and Randolph.
3 p. m.—Diseases of Women (Dispensary). Drs. Kelly and Robb.
3.30 p. m.—Lecture (Amphitheatre). Dr. Halsted. (During February.)
4.30 p. m.—Lecture (Amphitheatre). Dr. Kelly. (During January).
4.30 p. m.—Lecture (Amphitheatre). Dr. Hurd. (During February.)

TUESDAY.

8.30 a. m.—Surgical Operations (Private Operating Room). Dr. Halsted.
10 a. m.—Gynaecology (Hospital Wards). Dr. Kelly.
General Surgery (Dispensary). Drs. Halsted and Finney.
Genito-urinary Surgery (Dispensary). Drs. Halsted and Brown.
Diseases of Skin (Dispensary). Dr. Morison.
1 p. m.—General Medicine (Dispensary). Drs. Osler and Lafleur.
Nervous Diseases (Dispensary). Drs. Osler and Thomas.
Diseases of Children (Dispensary). Drs. Osler and Booker.
2 p. m.—Throat (Dispensary). Dr. Mackenzie.
2.30 p. m.—Eye and Ear (Dispensary). Drs. Theobald and Randolph.
3 p. m.—Diseases of Women (Dispensary). Drs. Kelly and Robb.
4.30 p. m.—Lecture (Amphitheatre). Dr. Osler.

WEDNESDAY.

9 a. m.—Gynaecological Operations (Private Operating Room). Dr. Kelly.
10 a. m.—General Surgery (Dispensary). Drs. Halsted and Finney.
Genito-urinary Surgery (Dispensary). Drs. Halsted and Brown.
Diseases of Skin (Dispensary). Dr. Morison.
1 p. m.—General Medicine (Dispensary). Drs. Osler and Lafleur.
Nervous Diseases (Dispensary). Drs. Osler and Thomas.
Diseases of Children (Dispensary). Drs. Osler and Booker.
2 p. m.—Diseases of the Throat (Dispensary). Dr. Mackenzie.
2.30 p. m.—Eye and Ear (Dispensary). Drs. Theobald and Randolph.
2.30 p. m.—Clinic (Amphitheatre). Dr. Osler.
3 p. m.—Diseases of Women (Dispensary). Drs. Kelly and Robb.
3.30 p. m.—Clinic (Amphitheatre). Dr. Kelly.
4.30 p. m.—Lecture (Amphitheatre). Dr. Councilman.

THURSDAY.

8.30 a. m.—Surgical Operations (Private Operating Rooms). Dr. Halsted.
10 a. m.—General Surgery (Dispensary). Drs. Halsted and Finney.
Genito-urinary Surgery (Dispensary). Drs. Halsted and Brown.
Diseases of Skin (Dispensary). Dr. Morison.
1 p. m.—General Medicine (Dispensary). Drs. Osler and Lafleur.
Nervous Diseases (Dispensary). Drs. Osler and Thomas.
Diseases of Children (Dispensary). Drs. Osler and Booker.
2 p. m.—Throat (Dispensary). Dr. Mackenzie.
2.30 p. m.—Eye and Ear (Dispensary). Drs. Theobald and Randolph.
3 p. m.—Diseases of Women (Dispensary). Drs. Kelly and Robb.
4.30 p. m.—Lecture (Amphitheatre). Dr. Osler.

FRIDAY.

9 a. m.—Surgical Clinic (Amphitheatre). Dr. Halsted.
Gynaecological Operations (Private Operating Room). Dr. Kelly.
10 a. m.—General Surgery (Dispensary). Drs. Halsted and Finney.
Genito-urinary Surgery (Dispensary). Drs. Halsted and Brown.
Diseases of Skin (Dispensary). Dr. Morison.
11.30 a. m.—General Medicine (Hospital Wards). Dr. Osler.
1 p. m.—General Medicine (Dispensary). Drs. Osler and Lafleur.
Nervous Diseases (Dispensary). Drs. Osler and Thomas.
Diseases of Children (Dispensary). Drs. Osler and Booker.
2 p. m.—Throat (Dispensary). Dr. Mackenzie.
2.30 p. m.—Eye and Ear (Dispensary). Drs. Theobald and Randolph.
3 p. m.—Diseases of Women (Dispensary). Drs. Kelly and Robb.
4.30 p. m.—Lecture (Amphitheatre). Dr. Welch.

SATURDAY.

9 a. m.—General Surgery (Hospital Wards). Dr. Halsted.
10 a. m.—General Surgery (Dispensary). Drs. Halsted and Finney.
Genito-urinary Surgery (Dispensary). Drs. Halsted and Brown.
Diseases of Skin (Dispensary). Dr. Morison.
1 p. m.—General Medicine (Dispensary). Drs. Osler and Lafleur.
Diseases of Children (Dispensary). Drs. Osler and Booker.
Nervous Diseases (Dispensary). Drs. Osler and Thomas.
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2.30 p. m.—Eye and Ear (Dispensary). Drs Theobald and Randolph.
3 p. m.—Diseases of Women (Dispensary). Drs. Kelly and Robb.

The Pathological and Clinical Laboratories will be open every week day.

Hospital Medical Society meets on the first and third Monday evening of each month.

The Journal Club meets on the second and fourth Monday evening of each month.

Publications of the Johns Hopkins Hospital.

I.—HOSPITAL PLANS.

Five essays relating to the construction, organization and management of Hospitals contributed by their authors for the use of the Johns Hopkins Hospital of Baltimore. These essays were written by Drs. JOHN S. BILLINGS of the U. S. Army, NORTON FOLSOM of Boston, JOSEPH JONES of New Orleans, CASPAR MORRIS of Philadelphia and STEPHEN SMITH of New York. They were originally published in 1875. One volume, bound in cloth, price $5.00.

II.—DESCRIPTION OF THE JOHNS HOPKINS HOSPITAL.

In preparation to be issued at an early day, a description of the Johns Hopkins Hospital, by JOHN S. BILLINGS, M. D., LL. D., Medical Adviser to the President and Building Committee of Board of Trustees. This volume will contain numerous plates with plans and detail drawings of all the Hospital Buildings; also photographic views of the exterior of the buildings. It will contain a careful and detailed description of the methods of heating and ventilating, plumbing and water-supply; also of the arrangements of the wards and service buildings and the mode of construction of the Hospital.

III.—THE JOHNS HOPKINS HOSPITAL REPORTS.

Volume I, for 1889. (In preparation). This volume will contain the Studies from the Pathological Laboratory.

There will appear articles on the following subjects: Hemorrhagic Infarction, Repair of Intestinal Suture, Reversal of the Intestine, Extirpation of the Thyroid Gland in Dogs, The Effects of Artificial Heat upon Animals, Hog Cholera, Behavior of Bacteria in Water, Bulbar Paralysis, Cerebellar Sclerosis.

The volume will be provided with illustrations.

It will be edited by Dr. W. H. WELCH, Professor of Pathology and Pathologist to the Hospital.

Volume II, for 1890. The second volume of the Hospital Reports begins in January, 1890, with a fasciculus of 64 pages. During the year, similar fasciculi will be issued, constituting in all a volume of about 500 pages. These fasciculi will contain pathological, medical, surgical and gynaecological papers and reports, details of cases, the technique of operations, etc. Subscriptions will be received for the volume at $5. The price of the separate fasciculi will vary with their size and the number of plates they contain.

No. 1 [for 1890] of *The Johns Hopkins Hospital Reports* is now ready. It contains papers on Fevers of Hepatic Origin, particularly the Intermittent Pyrexia associated with Gallstones, by WILLIAM OSLER, M. D.; some remarks on Anomalies of the Uvula, with special reference to Double Uvula, by JOHN N. MACKENZIE, M. D.; on Pyrodin, by H. A. LAFLEUR, M. D.; Cases of Post-febrile Insanity, by WILLIAM OSLER, M. D.; Acute Tuberculosis in an Infant of Four Months, by HARRY TOULMIN, M. D.; Rare Forms of Cardiac Thrombi, by WILLIAM OSLER, M. D.; Note on Endocarditis in Phthisis, by WILLIAM OSLER, M. D.—The price of this number is fifty cents.

IV.—THE JOHNS HOPKINS HOSPITAL BULLETIN.

The Trustees of the Johns Hopkins Hospital have authorized the issue of a monthly publication to be known as the Hospital Bulletin. It will contain announcements of courses of lectures, programmes of clinical and pathological study, details of hospital and dispensary practice, abstracts of papers read and other proceedings of the Medical Society of the Hospital, reports of lectures and other matters of general interest in connection with the work of the Hospital. Nine numbers will be issued annually. The first number appeared in December, 1889. The subscription price is one dollar per year.

A pamphlet containing the addresses of FRANCIS T. KING, President of the Hospital, DANIEL C. GILMAN, President of the University, and JOHN S. BILLINGS, Medical Adviser to the Hospital Trustees, at the opening of the Hospital, May 7, 1889, may be obtained on application.

Subscriptions for the above publications may be sent to the

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